Creating a Common Patient Safety Denominator: The Interns' Course

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Abstract

Aim After finishing medical school, interns are in many ways unprepared for handling patient care challenges independently. Recognizing that interns may benefit from a patient safety orientation, we developed an innovative curriculum to impart competencies related to their role in preventing medical errors. In the course, which runs during the first week of the intern year, we specifically address 1) calling for help; 2) teamwork and communication; 3) hand hygiene compliance; and, 4) preventing medication and other system errors.

Methods The course consists of a lecture, interactive workshop, and a Web-based didactic component. Small-group simulation sessions allow instructors to assess interns' baseline competence in hand hygiene and patient hand-offs. In an individual exercise, interns performed a directed physical exam on a standardized patient and their hand hygiene adherence was recorded. In a group exercise, team performance was evaluated in accepting a hand-off from another provider and managing a deteriorating patient.

Results Of the 131 interns, 35% (41) did not wash their hands before and 95% (121) did not wash their hands after patient examination. In the team exercise, scores for 23 teams ranged from 8 to 18 out of 30. None of the participants asked for additional information prior to accepting responsibility for the patient, despite a clearly inadequate hand-off. Post-course surveys indicate that interns consider the course worthwhile: 95% (121) found it beneficial, acquired new teamwork skills, had more appreciation for patient safety, and felt better prepared for clinical duties.

Discussion We observed serious gaps in hand-hygiene compliance and in communication during hand-offs, both significant impediments to quality patient care. Nevertheless, positive responses to the course from both the interns and the institution reflect an important step in fostering a culture of patient safety.

Background

Although only a few weeks separate medical school graduation and the beginning of residency training, there is a quantum leap in individual responsibility. Interns are in many ways unprepared for the challenges ahead, and there are reports[1] they experience discomfort and fear of harming patients. While some studies[2,3] have suggested that medical school is the optimal time to introduce patient safety and systems-based learning, our observation of cohorts of entering interns suggests that the scope and effectiveness of patient safety teaching varies across medical schools.

At the graduate medical education level, the degree to which patient safety is integrated into the curriculum also varies among clinical disciplines. Several specialties, including surgery,[4] emergency medicine,[5] and family medicine,[6] have described patient safety curricula for interns. However, their implementation and the extent to which they are supported by hands on activities have not been consistent across the settings studied.

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Intervention

Course Content

Since interns come from numerous medical schools, with different levels of exposure to the principles and practices underlying safe patient care,[7] we sought to create a "common patient safety denominator." Through its annual intern course, the University of Miami–Jackson Memorial Hospital Center for Patient Safety has worked to impart a clear, uniform message that system deficiencies and trainee inexperience can compromise patient outcomes. It addressed 4 key patient safety concerns:

Calling for Help Traditionally, trainees have been encouraged to handle challenges independently and learn accordingly. However, many interns express fear of harming patients because of their inexperience.[1] The course emphasizes that while interns need to take the initiative, they have to place patients' safety first. Our curriculum reminds interns that they are not alone in caring for their patients, and they should err on the side of caution in deciding when to call a senior resident or attending physician for help.[1,8]

Teamwork and Communication Data recently released by the Joint Commission[9] indicate that many sentinel events can be traced to failures in teamwork and communication. Team skills are difficult to teach and assess using the traditional methods of didactics and apprenticeship. To expose potential pitfalls, we focus on patient handoffs during transition of care and on communications between physicians and nurses or allied-health professionals.

Hand Hygiene Compliance United States health care continues to be plagued by hospital-acquired infections. At the same time, efforts to improve hand hygiene adherence, both before and after patient encounters, have been unsuccessful.[10] To emphasize the importance of hand hygiene at the start of residency, we have created clinical scenarios that test interns' hand hygiene adherence. Once identified, interns are frequently embarrassed by their own lack of hand hygiene compliance and become more receptive to the hand hygiene message.

Preventing Medication and Other System Errors Although individual doctors and nurses are often identified as the source of medical errors, in reality they function within a complex system. Our curriculum incorporated a medication error scenario as an example of a system breakdown that can be prevented by a resident physician through improved communication.

Course Structure

To attain a baseline competency in patient safety for all incoming interns, the Center for Patient Safety provides an annual, mandatory patient safety orientation. Staffed by physicians, nurses, and patient safety specialists, the course is conducted in June, immediately prior to interns assuming clinical responsibilities. The limited time available for the course preempts the opportunity to teach the skills associated and advance them through deliberate practice. Therefore, the objective of our course is to raise interns' awareness of the causes of patient harm and to initiate attitudinal changes.

Each year, we train approximately 180 interns, representing a range of specialties. To accommodate this large group of trainees, the course is divided into a lecture, an interactive workshop that includes 3 small-group stations, and a Web-based didactic component.

The 3-hour lecture is attended by about 70 interns daily and is given on 3 consecutive days. It focuses on the origins of the patient safety movement, the scope of the patient safety challenge, the anatomy of a medical error, and the role of physicians in training in minimizing errors. The lecture includes a number of trigger videos that illustrate good and bad teamwork, propagation of health care–associated infections, and the relationship between professionalism and patient safety.

The interns then proceed to an interactive workshop that includes small group stations that accommodate 5 to 8 interns at a time. They work in small groups, generally representing one specialty, accompanied by faculty from the same department. The choice of stations varies from year to year and may include the following:

- Individual encounter with a standardized patient to reinforce the hand-hygiene message. At this station, an actor enacts the scenario of a patient complaining of palpitations and heat intolerance from presumed thyroid disease. Before entering the room, trainees are instructed to perform a directed exam of the neck. Each intern has the opportunity to use alcohol-based hand sanitizer dispensers that are wall mounted outside the examination room, or a sink with chlorhexidine soap located in the examination room. The standardized patient and a trained observer stationed outside the examination room track interns' hand-hygiene technique, including (1) washing hands before and after the examination, (2) use of soap, and (3) use of alcohol-based hand sanitizer. Small group debriefings address the importance of hand washing and possible reasons interns do not practice appropriate hand hygiene. Institutional review board approval has been obtained for this study.
- Group encounter with a simulated patient (actor or simulator). Designed to elicit gaps in teamwork and communication skills, this exercise uses a patient simulator in a mock radiology suite. The group of trainees is told that the patient had been admitted for a computed tomography scan of the abdomen, and a resident was paged away to a code, leaving them without adequate handoff. After the resident rushed out of the room, the radiology technologist lowered the head of the patient's bed, resulting in gradual oxygen desaturation from 96% to 85%. The interns are expected to organize themselves into a functional team, call for help, and initiate therapy to stabilize the patient. While the setting and exact scenario have varied from year to year, the core message has remained.

To educate and evaluate intern performance, the debriefing by a patient safety expert has a dual focus on errors in clinical diagnosis and management as well as nontechnical skills such as leadership, teamwork, and communication.

TABLE 1 **Scorecard Used to Evaluate Team Performance in the Simulation Scenario**

Scorecard
1. Identified patient
2. Identified respiratory distress
3. Identified penicillin allergy
4. Applied oxygen
5. Called for help
6. Asked senior physician for clarification
7. Asked for CXR
8. Looked at existing CXR
9. Asked for labs
10. Identified medication error
11. Identified chart errors
12. Team leader assigned tasks
13. Team leader identified self
14. Team leader asked for input
15. Team communicated findings
TOTAL

Abbreviation: CXR, chest x-ray.

The debriefing typically focuses on questions about (1) the patient's situation, including the chief medical concern and the response to the deteriorating condition; and (2) team dynamics, including whether team members called for help, leadership and task assignment, and whether team members shared information effectively and used all available resources.

We developed a scorecard to capture 15 actions expected to be performed by the team, including medical management issues and communication and teamwork skills (TABLE 1). The scorecard uses a 3-point grading scale. Team performance during the scenario is videotaped, and 2 simulation specialists with clinical experience score each recorded scenario.

The Web-based content was designed to allow self-paced learning opportunities, and it focuses on medication errors and hand hygiene. The interns are expected to review the Web materials and answer online test questions within a week of the course. The exam is graded and completion is required prior to assuming clinical duties.

To assess the interns' perceptions of the course, we use a survey completed immediately after the training sessions. Questions gauge whether the course creates greater awareness of patient safety, whether interns expect it will improve their clinical performance, and whether the teaching methods are effective.

Results

Of 131 interns who were evaluated for hand-hygiene compliance, 35% (46) did not wash their hands before and 95% (121) did not wash their hands after the patient examination. Only 2.3% (3) used alcohol-based hand sanitizer; less than 1% used soap and alcohol-based hand sanitizer before, and no one used this combination after, the patient encounter.

In the second scenario, 23 groups of interns completed the team exercise. Team scores ranged from 8 to 18 out of 30, with a mean of 13.9 (SD ± 3.1). Of particular note, none of the team members asked for additional information

TABLE 2 **Responses to Postcourse Surveys From 149 Participants**

Question	Strongly Agree, %	Agree, %	Neutral, %	Disagree, %	Strongly Disagree, %
The objectives of the course were clear to me.	69.1	27.5	2.0	0.0	1.3
I acquired new medical knowledge.	37.6	42.3	18.1	0.7	1.3
I acquired new clinical skills.	33.6	43.0	20.8	1.3	1.3
I acquired new teamwork skills.	47.7	45.6	5.4	0.0	1.3
The use of technology resources helped the delivery of course material.	60.4	34.2	4.0	0.0	1.3
As a result of completing this course, I have more appreciation for patient safety.	67.8	30.2	0.0	0.7	1.3
The course was worth the time I spent participating.	59.1	34.2	4.0	1.3	1.3
I think this session will improve my ability to function in the clinical arena.	56.4	38.3	4.0	0.0	1.3

prior to accepting responsibility for the patient, suggesting an inadequate understanding of the handoff process.

Postcourse surveys consistently indicate that interns find the course worthwhile. Through the scenarios, they can readily see how individual limitations and system deficiencies may compromise patient outcomes. More than 95% (121) of participants reported they acquired new teamwork skills, had more appreciation for patient safety, and felt better prepared to function in the clinical arena. More than three-fourths of the respondents reported they acquired new medical knowledge and clinical skills that were supplemental to the core patient safety goals. Participants' feedback is summarized in TABLE 2. In narrative survey responses, many interns requested additional opportunities to practice patient safety skills. Our response has been to incorporate patient safety and simulation sessions in the curricula of many of the residency programs, such as critical event management training in anesthesiology and pediatrics and standardized bedside-procedure training in internal medicine, obstetrics and gynecology, and general surgery.

Discussion

We believe that interns' behaviors observed in our simulated clinical environment mirror their performance in actual clinical settings. We observed dismal hand-hygiene compliance and ineffective communication during handoffs, with both having the potential to compromise patient safety. The failure of recent medical school graduates to follow established hand hygiene guidelines may also reveal a lack of awareness of personal safety considerations. Medical schools may need to reevaluate their hand-hygiene curricula and learning opportunities.

Our observations from the team scenario revealed communication deficiencies, particularly problems with the handoff, that may present a challenge to effective patient care. Unlike hand hygiene guidelines, handoff protocols are inherently more complex and vary by institution. An accepted checklist such as situation-background-assessment-recommendation (SBAR),[11] if universally adopted, could streamline handoffs. Teaching of this approach could begin in medical school. Based on our findings, we have added a hospitalist with expertise in handoffs to enhance this message in future course offerings.

The course has generated positive feedback from the interns and other stakeholders, such as the hospital and individual departments, which continue to support the interns' course and now require all interns and advanced residents transferring from other programs to attend. Our findings and subsequent communication with institutional leadership have contributed to the creation of a Quality and Safety Governing Council. This council includes task forces on communications, hospital-associated infection, and hand hygiene.

The paramount objective of the course is for interns to learn patient safety practices and put them into action. The extent to which the latter objective has been achieved is difficult to measure in the short term and requires further evaluation by tracking interns' performance over time. The interns' positive response to the introductory course is an important step in fostering a culture of patient safety.

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